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Professor Watson says that raccoons do not possess language habits (p. 227), but he elsewhere in the book (pp. 332–3) recognizes the existence of other than vocal language, *i. e.,* language habits having their locus "in the general bodily musculature." Professor Watson admits (p. 333) that he only believes and does not know that this type of language habit is formed later than the vocal type. Frankly the question can not be definitely answered at present. But if we are to get at the genesis of the idea function or, as one might say, the "language habits of the body" and if we are to find out whether or not this appears prior to the genesis of vocal language (*i. e.,* in the animals below man), it will, the writer firmly believes, be through an analysis of the delayed reaction.

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SOCIETIES

THE NEW YORK BRANCH OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

THE New York Branch of the American Psychological Association met in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences on November 23, at Columbia University. The following papers were read:

Some Aspects of Emotional Reactions.—WAYNE P. SMITH.

Importance of Emotion.—Psychological study is beginning to confirm common observation as to the significance of the feelings and emotions in behavior. Educational practise has been in advance of educational theory, for it has sought to utilize feelings and emotions in development of sane and efficient social workers. It has recognized that things that affect or evoke emotional reaction and tend to get more immediate motor response command more thorough consideration and interpretation than do those without this "appeal" or emotional character. From feeling, as the elemental evaluation of things for life, springs inquisitiveness, or the whole knowledge process. The chief function of knowledge seems to be to clarify, that is, to emphasize and unify in a larger perspective, the values of things to which response is to be made.

Conditions of Emotional Reaction.—Emotivity depends, first, upon the nature of the individual as determined by race, sex, age, environment, and disposition; second, on the state of the individual as determined by fatigue, health, inertia, and the functioning of certain organs, especially the cerebral cortex, the skin, certain sense organs, and the alimentary canal, sexual organs, certain ''ductless'' glands, the circulatory and, in a possibly less degree, the respiratory systems; third, by certain psychic conditions as attitude, interest, preoccupation, suggestibility, psychical habits of relatively dependable character in presence of certain emotive stimuli, and finally the interpretation of the situation. All the conditions that contribute to euphoria and dysphoria are involved likewise in the emotional reactions of an individual.

In a more specific way emotional reaction depends upon the kind and degree of organization of an individual. This varies from one pole to the opposite. One extreme type is almost chaotic, incoherent, impulsive, and explosive, indiscriminately responsive to all sorts of stimuli. The other extreme is highly centralized, exclusively narrow, mono-idealistic or *idée fixe* in character. In the latter class all vital tendencies and interests are dominated through repression, or perversion, by a single zone which has a hair-trigger responsiveness to suitable emotional stimulation. Outside this zone such an individual shows apathy, a kind of poise, and a comprehensive ''*nil admirari*'' attitude. Variations of this type may be found not only in industrial fields where occupation and circumstance may be responsible, but also in such fields as religion, art, morality, even science and philosophy. Organization tends to establish almost insuperable psychic barriers against all stimuli external to the particular zone of interest.

Emotivity is also determined by degree of ''intellectual control,'' and this is not to be confused with ''organization'' just cited. In those in whom intellectual control is most highly developed, all emotive excitations are taken as problems of knowledge. Even ''shocks'' are effectually dealt with by a system of psychic defenses and controls. A standard of ''emotionless'' behavior may obtain. There are, of course, many variations from the extreme. A general statement may be made that ''emotivity varies inversely as intellectual control.''

Function of Emotional Reaction.—Psychological research shows that emotional reactions have a valuable positive as well as an apparently negative function. They are more important than to serve merely as symptoms or psychic effects of sensory and motor excitation. They have a causative function as recent investigation shows. The function may be summarized as follows. First, emotions of the more intense kind signalize the compresence of several motor tendencies which, evoked by the perception of the situation, are incoordinate, mutually conflicting, and inhibitory in their struggle for expression. They are, moreover, inhibitory of immediate overt action, in very large measure, at all events, by the organism. Such immediate emotive responses as usually occur may be means of protection or communication or mere vestiges of acts that have survived the period of their utility. Among these acts may be mentioned convulsive movements, "freezing," cries or growls, trembling, facial contortions, and flushing or pallor of face, hair standing on end, parched mouth, and throat, and so on: many more or less prophylactic or communicative, but some certainly belonging to levels of behavior not adapted to the present.

Second, emotional reactions make possible and necessary novel and more satisfactory mode of behavior. Momentary inhibition of gross organic response by emotion allows a rapid survey of the situation and incited motor tendencies, both old and new, and a selective organization of these tendencies into a fit plan of action. This clarification of the situation as a whole is accompanied by a gradual subsidence of intense emotion into a vigorous emotional tinge that reinforces and "moves" the whole organism to action. The outcome of the plan reflexly qualifies the remembered experience as "emotional meaning" which is utilized in future experience.

Third, emotion not only reinforces and gives ultimate directness and quickness to the plan of behavior adopted, but it also sets free energy and makes it available for immediate consumption. Old accounts say that emotion animates and invigorates with the heat and flush of swiftly-flowing blood, "anger sweetens the blood," reveals a sense of new and greater powers and a faith and zeal that carry one to successful issue. Experimental researches support this popular idea.[1] It is fairly to be inferred from data available that "big" emotions, especially as fear, anger, and possibly love, stimulate through sympathetic connections certain organs as the thyroid and the adrenal glands. The stimulation of the adrenals effects secretion of adrenalin in the blood, which at once accelerates heart action and circulation of blood, changes the chemical nature of the blood and size of blood vessels, sets free in more than usual amount "blood sugar" from the liver which, with the increased supply of oxygen through quickened respiration, provides with necessary energy whatever parts of the organism are concerned in the work to be done. These emotions also by influence upon other glands and organs suppress temporarily alimentary and other processes not serviceable in the given crisis of behavior. The sense organs may be made hypersensitive or partly suppressed. Mobilization and utilization of energy is the essential business of certain emotions. Other processes are held in abeyance. The organism is delicately and accurately adaptable to situations that affect it. The emotions are instrumental in facilitating adaptation, in setting free extra energy, and in "moving" the whole organism to the efficient achievement of the work that must be done.

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[1] See among others the accounts of physiological experimentation of Benedict and Cathcart, F. S. Locke, Vincent, Sherrington, Schäfer, Bickel and Sasaki, Cannon, Pawlow.

Fourth, with the development of an individual, emotional reactions tend to lose their "bigness" and intensity in some measure and, in combination with other factors, to be sublimated into attitudes and sentiments of dependable character and utility in behavior. Emotional as well as other aspects of experience are susceptible of organization into psychic controls. Such controls are modesty, sympathy, love, loyalty, patriotism, and other familiar sentiments. With this feature of emotion education is especially concerned.

Motor-Emotional Expression of an Infant.—GARY C. MYERS.

The report was based on a rather extensive observation of a baby's emotional expression by the arms and legs, during his first year. If the behavior of the child studied is typical, it seems that pleasurable movements are at first random, due, perhaps, to lack of coordination of the moving members. Soon these movements became alternate. In this case, the one member of the pair, being stimulated to response, consequently suffers fatigue, and the other member, due to gradually coordinating motor pathways, takes up the movement, which in turn shifts to the first again, etc., until both are accumulatively fatigued, or the stimulus is too weak to elicit a response, or both. Then, with development, each member of the moving pair becomes less susceptible to fatigue, and, in accordance with the law of habit, tends to repeat its own movement, resulting in rhythmical, successive movements by the same limb. Later the coordination, in greater perfection, provides unified expressions by pairs of the limbs. Finally, single movements of either member of the pair may be set up in response to a strong feeling, or the unified movements may be more speedy and graceful. Therefore, the character and speed of motor emotional reactions by the limbs are determined by the degree of coordination of the members of the moving pairs.

Motor-emotional expressions are apparently the most primitive as well as the most fundamental. These movements seem to serve as drill exercises to discipline the limbs into definite forms of motor reactions out of which grow the useful and voluntary acts of the individual.

Aside from the movements of the first few weeks, emotional expressions by the limbs tended to occur in successive series, with the number of movements per series varying from 1 to 18 and with a central tendency of from 3 to 5 per series. Between the series the interval of time was but a little less than the total time for the series. The rate of movement increased with the increase of motor coordination.

These (rhythmical) movements began on the left side, then were transferred to the right. For example, the left hand began a regular drumming movement on the 123rd day; the right hand began the same type of movement on the 141st day; the left leg, 139th day; right leg, 143rd day. Unified movements by the legs began on the 148th day, and were well developed by the 189th day. Unified movements by the arms began the 177th day and were well developed by the 247th day.

However, the transition from one type of movement to another was gradual; and while new movements for emotional expression became more numerous as time went on, the old movements were occasionally revived and seem never wholly to have died out.

Pleasure tends to induce and accelerate activity and displeasure to inhibit and retard activity. Pleasurable motor expressions tended to reach their maximum and to cease at an appreciable interval before the real pleasurable experience which was in anticipation, *i. e.,* anticipation at its climax seemed to give greater pleasure than the real experience of the thing anticipated.

Unified hand movements, which, by the last few months of the year tended to be toward each other, ceased at the end of the series, with the hands coming together, palm to palm. As the speed and force of these movements of pleasure increased, they finally came together with a clap, and gradually, instead of the introductory unified movements, there developed the regular clapping of the hands as expression of a high degree of pleasure. Therefore, one of the most primitive expressions of pleasure is applause.

The Logic of Intermediate Steps.—H. L. HOLLINGWORTH.

A familiar form of argument in the natural sciences, especially in biology, psychology, and anthropology, is based upon the evidence afforded by the existence of intermediate stages between two conditions, types or processes whose nature or origin is in question. The existence of such intermediaries is commonly held to indicate that the two extremes are either identical in essence or structure, or at least that the one is a direct development of and evolution from the other. The final abandonment of this serial argument in biology was pointed out. Numerous instances from anthropology and psychology were cited in which the argument is still relied on. The nature of the fallacy was elaborated and the inadequacy of the principle of intermediaries emphasized.

Experiment versus Court Decision.—RICHARD H. PAYNTER.

The purpose of this study is to report an experiment on the confusion between trade-names and their imitations, and to compare the results with legal decisions. The decisions of the legally allowable amount of similarity, confusion, or deceptiveness between the trade-names and their imitations were rendered by judges of state and federal courts, and by commissioners of patents. Cases in which technicalities or other circumstances entered to influence the judgments as expressed in the decisions are not under consideration. Legally a ''probability of deception'' constitutes an infringement. But since the phrase '' probability of deception'' has a variable meaning and has not been objectively measured, it is merely an individual subjective standard, though often couched in concrete terms. On the other hand, experiment actually measures the probability of deception between two trade-names by the per cent. of individuals deceived by the imitation. Thus, by determining to what extent the scores of the infringements are psychologically more confusing than those of the non-infringements, experiment can state the reliability of decisions.

Recognition was the method used. Thirty-nine cases were studied, twenty-four being infringements and fifteen non-infringements. Two groups of subjects were tested, the uninformed and the informed. There were ten men and ten women in each group. Each test contained imitations of original trade-names shown in the presentation, exact duplicates of others, and new trade-names. In the test the subject was asked to pick out those trade-names he recognized as having been just seen in the presentation and those he recognized as not having been just seen. The scores were calculated on the per cent. basis. For example, if fifteen of the twenty subjects in the group were confused by the imitation, recognizing it as having been seen, the confusion estimated between the original and its imitation is 75 per cent.

In the uninformed group the averages of the scores of confusion caused by the infringing and non-infringing imitations are, respectively, 50 per cent. (P. E. 2.9) and 38 per cent. (P. E. 3.0), the medians 45 per cent. (P. E. 2.9) and 40 per cent. (P. E. 3.8) and the modes 45 per cent. for both. Ninety-six per cent. of the total number of infringements are contained between the same limits as the non-infringements, and 80 per cent. of the total number of non-infringements are contained between the same limits as the infringements. If the decisions were all psychologically correct there would not have been any overlapping or only very little. In only 6 cases out of 9 which the experiment showed most easy to judge were the decisions really right. The averages, medians, modes, and great per cent. of overlapping show that the difference between the infringements and non-infringements is so small in comparison with the differences within them as to make the decisions very unreliable. The results of the informed group confirm this conclusion. The recognition method is recommended for determining the amount of confusion between trade-names, trade-marks, labels, and packages. Besides giving an actual measurement the recognition method will constitute an enormous saving in time, energy, and money over the present legal procedure of the courts and patent-office. Congress, however, in legislating recent trade-mark laws, and the Supreme Court of the United States in interpreting the meaning of infringement as expressed therein, state that a reproduction, copy, or imitation which constitutes an infringement must be a ''colorable imitation'' or such as is ''calculated to mislead.'' These indefinite and variable meanings of infringement should be replaced by a quantitative statement of the per cent. of individuals which must be deceived.

Demonstration of Psychological Apparatus.—C. HOMER BEAN.

Of the two pieces of apparatus that were demonstrated, one is intended to take the place of Willyoung's troublesome pith-ball weights for the determination of the probable lower limit of least sensitivity to touch. My apparatus is a balance with a tubular glass beam, on the lower side of which is etched a millimeter scale. The relative weights of the two arms of this beam may be varied by sliding a small aluminum rod, that is within the tube, one millimeter for each milligram. The base of the instrument supports the hand or arm comfortably and conveniently during the test. Among the difficulties encountered in the use of the pith-ball weights, that are obviated by this apparatus, are the slowness and the consequent fatigue, the extreme variability of the results and the impossibility of lowering a weight upon the sensitive surface twice in the same manner. In order to avoid the last of these faults in procedure, the balance bar is allowed to come gently into contact with the skin, and is raised from it after a fixed interval by means of a cam that is attached to a slowly vibrating pendulum. This pendulum is started and stopped by the experimenter.

The second apparatus, a maze, was planned as a means of assigning a learning task within the capacities of rodents and higher animals, a task that, nevertheless, requires a large enough number of repetitions to make possible a better analysis of the learning process. The curves derived from the alley maze used by Dr. John B. Watson and others descend so nearly vertically at first and so slowly thereafter as to indicate that each animal has solved a puzzle, discovered a trick, in the first complete reaction, and has nothing further to gain except confidence. The curves obtained from my maze descend rapidly at first, but not abruptly, and later gradually decrease in the rate of fall, as all such curves do when the learner is taxing to its full extent his ability in memorizing. This maze consists of triangular rooms of equal size. The animal no sooner enters a room by means of a door in the middle of one of its sides than it is confronted by the necessity of choosing between doors in its two other sides. One of these doors leads into a ''blind'' room which has no exit, whereas the other leads through many similar rooms, with their adjacent ''blind'' rooms, to food and friends. The animal is occupied every moment with conscious reactions because there are no long alleys to be traversed between choices. This kind of maze can be increased or decreased readily in the number of its rooms, easily modified in the direction of its ''route,'' or inexpensively replaced by a duplicate in order to eliminate odor and other disturbing factors. Each choice is different from every other choice; but all are of equal difficulty. Therefore, they may serve as equivalent units for quantitative statement of what an animal has accomplished.

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REVIEWS AND ABSTRACTS OF LITERATURE

Truth and Reality: An Introduction to the Theory of Knowledge. JOHN ELOF BOODIN. New York: The Macmillan Company. 1911. Pp. viii + 334.

The aim of the volume before us, as the sub-title implies, is primarily epistemological. The author promises in the preface to follow it up shortly by another volume on metaphysics, to be entitled "A Realistic Universe," where some problems suggested in this book will be dealt with more fully.

The author's position is already known to the philosophical public, since eleven of the seventeen chapters which make up the volume have already appeared in substantially their present form in various American philosophical journals. Professor Boodin makes open profession of pragmatism, but pragmatism of a very special brand, the pragmatism of William James to whom the volume is fervently dedicated. In fact, one of the chief merits of the presentation is the attempt made to rescue pragmatism as a method and as a theory of truth from the unwarranted developments of the instrumentalists and the humanists. It is safe to say that no other disciple of James has presented his position so fully and so accurately.

The work is divided into four parts, in which are taken up at about equal length the four problems: I. "Truth and Mental Constitution"; II. "The Nature of Truth"; III. "The Criterion of Truth"; IV. "Truth and its Object." Under these captions all the main problems bearing on the nature, function, and verification of reflective thought, to which the